REMARKS / ARGUMENTS

By this Amendment, claims 28, 30, 35, 36, 41, 43, 44, and 47 have been amended. Claims 28-47 remain pending in this application and reconsideration thereof is respectfully requested in view of the following remarks.

Representative, non-limiting support for the amended claims is identified as follows:

Claims 28, 35, 36, 44 and 47: Original claims 1 and 2, the specification at page 2, lines 4-8, page 6, line 2 and 14-18, page 6, lines 22 to page 7, line 2, and page 7, lines 9-15 and Figure 4.

Claims 30, 41 and 43: Specification at page 4, lines 11-12.

In the Office Action mailed August 30, 2005, claim 30 was objected to for an informality. Claim 30 as well as claims 41 and 43 have been corrected as suggested by the Examiner and Applicant expresses his appreciation for catching this typographical error.

Claims 28, 33-36 and 38-39 were rejected as lacking novelty over Miller (US 5,237,617). The remaining claims were rejected as being obvious over Miller in view of one or more of Kosugi et al (US 5,168,192) and Focht (US 4,446,724) and Kwang (US 5,384,855).

Applicant respectfully traverses these rejections based upon amended claims 28 and 35 and un-amended claims 42 and 45 for the following reasons.

Applicant begins with the rejection of un-amended independent claims 42 and 45 and notes the inexplicable and regrettable absence in the Office Action of any explanation as to how Miller (or Kosugi) teaches "wherein if the vehicle engine has a

throttle valve, the piezoelectric sensor is disposed upstream of the throttle valve." As will be demonstrated below, Miller not only teaches that the pressure sensor must be downstream of the throttle valve, such that this feature is novel as compared to Miller, but moreover Miller provides no motivation or expectation of success for utilizing a pressure sensor upstream of the throttle valve. The other cited references do not remedy this deficiency in the rejection of claims 42 and 45.

Referring to Figure 1 of the present application, a person skilled in the art understands that the vacuum line must be in communication with the portion of the intake manifold that is between the throttle valve 18 and the cylinders 8. When the engine is idling, the throttle valve 18 is in the closed, or substantially closed position, such that the air-flow cross-section of the distributor pipe 12 is made relatively small, thereby substantially restricting the flow of fresh air to the cylinders 8. However, the valves of the cylinders 8 continue to open and close, thereby drawing air into the cylinders 8 so that the engine 6 continues to combust gasoline.

The combination of a restricted air passageway in the intake manifold downstream of the throttle valve 18 and the continued opening and closing of the cylinder valves results in a reduced pressure or partial vacuum in the section of the intake manifold between the throttle valve 18 and the cylinders 8. The "vacuum line" or "vacuum sensor" thus is provided to detect this reduced pressure.

On the other hand, upstream of the throttle valve 18, the intake manifold is open to the outside atmosphere and thus, the pressure within the upstream section of the intake manifold remains substantially at atmospheric pressure when the throttle valve 18 is closed. In other words, there is no "vacuum" upstream of the throttle valve 18 and it is thus clear that the vacuum line of Miller must be downstream of the throttle valve

18.

As will be appreciated, during engine idling, the pressure conditions upstream and downstream of the throttle valve 18 will be remarkably different. With a relatively low air flow passing through the intake manifold, the pressure fluctuations upstream of the throttle valve 18 will be relatively low. On the other hand, because the opening and closing of the cylinder valves will effectively act as a vacuum pump with the throttle valve 18 in the closed position, a significant reduced pressure will develop downstream of the throttle valve 18, and relatively significant pressure fluctuations will occur downstream of the throttle valve 18 while the engine is idling.

Thus, a pressure sensor disposed downstream of the throttle valve 18 will generate significantly different pressure fluctuation signals than a pressure sensor disposed upstream of the throttle valve 18.

Naturally, when the throttle valve 18 is fully opened, such as when the accelerator pedal is deeply depressed by the driver, the pressure conditions upstream and downstream of the throttle valve 18 will tend towards equilibration. However, across varying operating conditions (i.e. opening angles of throttle valve 18), a pressure sensor upstream of the throttle valve 18 will experience a significantly different profile of pressure fluctuations from a pressure sensor downstream of the throttle valve 18, and thus generate significantly different output signals.

Gasoline-powered engines normally utilize a vacuum line sensor (i.e. a sensor downstream of the throttle valve) to detect the instantaneous operating condition of the engine, which information is utilized to control the operation of the engine. Thus, as Miller teaches to utilize the output of the vacuum line detector, which is normally provided in gasoline-powered engines, the person skilled in the art understands that

Miller does not require a new sensor to be utilized in order to practice the teachings of Miller.

Thus, in order to achieve the invention of claims 42 and 45, it would have been necessary to utilize a new sensor in a location that the pressure is not normally detected. Miller neither suggests such an arrangement, nor provides any expectation of success. In other words, by failing to identify any benefit to utilizing a sensor that would not normally be provided in the engine, it is respectfully requested that the person skilled in the art would have had no motivation to place a new pressure sensor upstream of the throttle valve.

Moreover, as the specification makes clear, e.g. at page 2, lines 4-9, page 7, lines 9-15 and page 9, lines 3-11, surprising results were achieved by this advantageous location of the pressure sensor.

In addition, it should be noted the Kosugi does not remedy this defect in the obviousness objection of claims 42 and 45, as Kosugi teaches a pressure sensor for detecting the pressure inside the cylinder (combustion chamber). See col. 6, lines 29-49.

For at least these reasons, claims 42 and 45, as well as dependent claims 33 and 38, are believed to be non-obvious over Miller and/or a combination of Miller and Kosugi.

In addition or in the alternative, as is hopefully appreciated from the above explanation, the vacuum line sensor of Miller is not expected to "generate signals that emulate the noise of the vehicle engine" according to claims 42 and 45. Considering again the engine idling condition, significant reduced pressures and fluctuations will be generated downstream of the throttle valve at a time when the engine noise is relatively

quiet. In other words, as can be appreciated from personal observation, an idling engine is much quieter than an engine under full acceleration. However, the vacuum line sensor of Miller would generate the largest signals at a time when the engine noise is, relatively speaking, the quietest.

Thus, it is respectfully submitted that claims 42 and 45 distinguish from Miller for this additional reason.

In addition or in the alternative, it is believed that the language of claims 42 and 45 excludes the possibility of covering Miller, because the claimed piezoelectric sensor generates signals that emulate the noise of the vehicle engine (see above), "said" engine noise signals (not some other signal) are amplified and "the" amplified signal (again not some modulated stored engine sound as in Miller) is supplied to the at least one speaker. The antecedent basis should make clear that some other signal, which is not derived as its source from the signals generated by the pressure sensor, is not contemplated.

In addition or in the alternative, it is reiterated that the goal of Miller is to deliver a fake engine sound to the vehicle cabin, i.e. an engine sound that is different from the actual sound of the engine. Thus, the speaker of Miller will not output sounds representative of "the" engine noise, but rather the engine noise of another significantly different engine.

In view of the fact that Miller is directed to a completely different object (i.e. producing fake engine sounds versus producing sounds corresponding to the engine of the vehicle), any change to achieve the present invention would completely change the principle of operation of Miller, thereby further establishing that Miller is not a proper reference under MPEP 2143.01 for making an obviousness rejection.

For one or more of the foregoing independent reasons, it is respectfully requested to withdraw the obviousness rejection of claims 42-47, as well as the novelty rejection of claims 33 and 38.

Turning to claims 28 and 35, it is again noted, for the reasons discussed in further detail above, Miller will not generate "signals representative of the sound of said engine" according to claim 28 or output "sounds representative of the noise of said vehicle engine." The vacuum sensor of Miller generates the largest pressure signals at the time when the engine is running at its quietest and moreover, the entire goal of Miller is to generate fake engine sounds representative of engines different from the actual engine of the vehicle.

Thus, claims 28 and 35 distinguish from Miller for at least this reason.

In addition or in the alternative, Miller does not supply amplified pressure fluctuation signals to the speakers, but rather supplies modulated, stored engine sounds representative of a different engine to the speakers. Thus, claims 28 and 35 distinguish from Miller for this additional reason.

As has been previously argued, because Miller's object is to generate engine sounds that mimic different engines, whereas the presently claimed invention seeks to generate engine sounds that are representative of the engine, Miller teaches away from the present invention (MPEP 2141.02) and consequently, a person skilled in the art would not have been motivated to utilize the teachings of Miller to achieve the present invention.

Thus, it is respectfully requested to withdraw the novelty rejection of claims 28 and 35.

Finally, it is noted that, although multiple grounds for distinguishing the claims

from Miller and the secondary references have been provided, any one ground is sufficient to distinguish the claimed invention from these references. Therefore, no estoppel effect is possible with respect to any of the features of the claims, due to the fact that Applicants do not rely on any one particular feature of the claims for overcoming the present rejections (i.e. no particular feature is essential for overcoming the novelty and obviousness rejections made in the Office Action mailed August 30, 2005).

As all rejections are believed to have been overcome, an early Notice of Allowance is earnestly solicited. However, should the Examiner have any further comments or suggestions, the undersigned would very much welcome a telephone call in order to discuss appropriate claim language that will place the application into condition for allowance.

Respectfully Submitted,

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